OBSERVATION
Type of Posterior Capsular Opacification

- 10%
- 17%
- 73%

- Elschnig's pearls
- Mixed opacification
- Thick fibrotic membrane
The present study “The effects on visual acuity following Nd:YAG laser posterior capsulotomy after ECCE with or without IOL implantation & to evaluate its associated complication(s)” was carried out in the department of Ophthalmology M.L.B. Medical College Jhansi. During this period 60 patients were selected for Nd:YAG laser poster capsulotomy. All 60 patients presented with chief complaint of painless, progressive diminution of vision after a successful cataract surgery.

Table-1
INITIAL LASER POWER SETTING DEPENDING UPON DEGREE OF CAPSULAR OPACIFICATION

<table>
<thead>
<tr>
<th>Type of Capsular opacification</th>
<th>Eyes</th>
<th>%</th>
<th>1-2 mJ</th>
<th>2-3 mJ</th>
<th>3-5 mJ</th>
<th>&gt;5 mJ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elschnigs pearls</td>
<td>10</td>
<td>16.6%</td>
<td>8</td>
<td>2</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Moderate opacification</td>
<td>44</td>
<td>73.3%</td>
<td>22</td>
<td>18</td>
<td>4</td>
<td>-</td>
</tr>
<tr>
<td>Thick fibrotic membrane</td>
<td>6</td>
<td>10%</td>
<td>-</td>
<td>2</td>
<td>4</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>60</td>
<td></td>
<td>30</td>
<td>22</td>
<td>8</td>
<td></td>
</tr>
</tbody>
</table>
out of 36 patients, 10 had Elschnig's pearls, 44 had moderate posterior capsular opacification and 6 patients had thick fibrotic posterior capsule. The basic power setting of Nd:YAG laser and total amount of laser energy needed for making an adequate opening in the posterior capsule depend on the type of capsular opacification. In present study out of 10 patients with Elschnig's pearls the initial laser power setting used was between 1-2 mj in 8 patients and was increased to 2-3 mj in 2 patient for an adequate posterior capsulotomy. In 44 patients with moderate capsule opacification the initial power setting was between 1-2 mj in 22 patients, increased to 2-3 mj in 18 patients and further increase to 3-5mj in 4 patients, while in 6 patients with thick fibrotic PCO initial power setting required to make an opening was 2-3 mj in 2 patients and 3-5 mj in 4 patients.
Table 2 shows that in our study out of 60 patients, 52 patients were pseudophakic and 8 patients were aphakic. Out of 52 pseudophakic patients 10 had Elschnig's pearls, 40 had moderate capsular opacification and 2 had thick fibrotic PCO, while in the group of 8 aphakic patients 4 had moderate capsular opacification and remaining 4 patients had thick fibrous PCO.
Table 3

**DURATION OF APPEARANCE OF VISUALLY SIGNIFICANT PCO AFTER CATARACT SURGERY**

<table>
<thead>
<tr>
<th>Visually significant PCO after cataract surgery – duration</th>
<th>No. of eyes</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 6 months</td>
<td>20</td>
<td>33.3%</td>
</tr>
<tr>
<td>6-12 months</td>
<td>24</td>
<td>40.0%</td>
</tr>
<tr>
<td>1-2 yr.</td>
<td>10</td>
<td>16.6%</td>
</tr>
<tr>
<td>2-3 yr.</td>
<td>4</td>
<td>6.6%</td>
</tr>
<tr>
<td>3-5 yr.</td>
<td>2</td>
<td>3.3%</td>
</tr>
</tbody>
</table>

Table 3 shows the time from cataract extraction surgery to usually significant opacification. In our study out of 60 patients, 20 patients presented with visually significant PCO within 6 months of cataract surgery, 24 patients in 6-12 months; 10 patients within 1-2 Years; 4 patients within 2-3 years & 2 patients presented 3-5 years after surgery.
Total Amount of Laser Energy used for Posterior Capsulotomy

![Bar graph showing the number of eyes with different energy levels](image)

- 0-30 mj: 10 eyes
- 31-50 mj: 44 eyes
- 51-100 mj: 6 eyes

Total Energy given
Table 4 describes the total amount of Nd:YAG laser energy used for posterior capsulotomy. In present study out of 60 eyes, 10 eyes required the total laser energy between 0-30 mj for an adequate posterior capsule opening, 44 eyes between 31-50 mj and rest 6 eyes between 50-100 mj. The total amount of laser energy used was comparatively more in eyes with moderate and thick fibrotic capsular opacification.
Table 5 shows the number of eyes with IOP rise by more than 5 mm of Hg with respect to different laser energy used. The IOP recordings were taken prior to laser capsulotomy and 1 hour, 4 hour & 24 hour after the laser capsulotomy procedure. In 10 eyes the total laser energy needed for an adequate posterior capsulotomy was in between 0-30 mj and there was no rise in IOP from the baseline. In other group of 44 patients, in which total laser energy used was between 30-50 mJ., 1 patient had a rise in IOP greater than 5 mmHg which remained as it is even after 4 hours post laser, but comes to its previous level after 24 hours. In last group of 6 patients, who received
IOP

ENERGY

THICKNESS OF CAPSULE
total laser energy in between 50-100 mj, 2 patients had a rise in IOP level $5$ mmHg after 1st hour of post laser. 2 more patients added to this group with IOP level $5$ mmHg. The IOP in these 4 patients reached to its previous level after 24 hours.

So in our study it was found that with the increasing amount of total laser energy for posterior capsulotomy there is more rise in IOP from the baseline.

It was also inferred from our study that the rise in IOP was transient & comes to baseline after 24 hours.
BCVA- Best corrected visual acuity

Table 6 shows the pre and post laser capsulotomy best corrected visual acuity. Out of 60 eyes in 60 patients, 32 patients in group A had the best corrected visual acuity < 6/60, 22 in group B had 6/24-6/60, & 6 patients in group C had visual acuity in between 6/18-6/24. We excluded the patients having best corrected visual acuity > 6/18.

Out of 32 patients in group A 6 attained BCVA in between 6/24-6/60, 12 attained BCVA in between 6/12-6/24, 11 attained BCVA in between 6/6-6/12, & 3 had no improvement. Out of 3 patients 2 were having very thick capsule & 1 was having age related macular degeneration.
which was not ascertained, before capsulotomy owing to capsular opacification.

In group B out of 22 eyes 8 attained BCVA in between 6/12-6/24 & 14 attained BCVA in between 6/6-6/12. In group C out of 6 eyes, each patient attained BCVA of 6/6.

Hence in our study out of 60 eyes 57 eyes i.e. 95% of patients had improvement in their vision & 3 eyes showed no improvement.
Table 8 describes the complications following Nd:YAG laser posterior capsulotomy. The complications in our study were very few. We encountered mild iritis in 1 patient, glare in 2 patients, pitting over IOL in 4 patients & vitreous floaters in 2 patients.

Mild iritis in 1 case responded well to Flurbiprofen eye drops, thrice daily for 2 weeks post laser.

The other reported complications after Nd:YAG laser capsulotomy are cystoid macular oedema, rheumatogenous retinal detachment & endophthalmitis (Propionbacterium acnes). In our study none of the patient developed these complications.